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TABLE OF CONTENTS.

PAGE.
Editorial 257
Publications 258
Forest Nurseries for Schools 262
Cotton Growing in the West Indies..268
Fowls for Table 270
The Culture of Coffee 270
Influence of Time in Milking 272
Of Interest to Beekeepers 273
The Importance of the Farm Woodlot..276
Vegetables 280
School Gardens in Jamaica 281

DIVISION OF FORESTRY.

FOREST AND ORNAMENTAL TREE SEED AND SEEDLINGS FOR SALE AT THE GOVERNMENT NURSERY.

The Division of Forestry keeps constantly on hand at the Government Nursery, seed and seedlings of the important native and introduced trees. These are sold at prices just covering the cost of collection or growing.

The list includes both forest and ornamental trees, such as Silk Oak, Koa, various species of Eucalyptus, Golden and Pink Showers, Pride of India, Poinciana, Albizzia, etc. The price of the seed varies from 10 to 50 cents per ounce. The seedlings may be had for 2½ cents each, except a few kinds which are 5 cents. Seed of the various palms is also for sale; the price per 100 varying from $1.00 to $2.50. All seed is tested before being sent out, which insures its being good.

All communications in regard to seed or trees should be addressed to David Haughs, Forest Nurseryman, Box 207, Honolulu, Hawaii.

RALPH S. HOSMER,
Superintendent of Forestry.

DIVISION OF ENTOMOLOGY.

To give information about insects free of charge is one of the duties of this Division and Hawaiian readers are hereby invited to make inquiry in person and by mail. In order to be able to advise intelligently or send the right kind of useful insects for relief we like and sometimes it is indispensable for us to see the insect suspected or caught in the act, also specimens of the injury. In a tin with a hole or two, or a wooden box specimens may be mailed at 3rd class rates. When specimens are not accompanied by letter *always* write your name and address in the upper left-hand corner of the package. Address all communications SUPERINTENDENT DIVISION OF ENTOMOLOGY, P. O. BOX 207, HONOLULU, HAWAII.

EDW. M. EHRHORN,
Superintendent.

THE HAWAIIAN

FORESTER & AGRICULTURIST

VOL. VIII. SEPTEMBER, 1911. No. 9.

There is an unprecedented absence of official reports in this number owing to the absence of executive officers from both the city and the Territory, preventing the holding of meetings of the board and the rendering of reports. The omission is made up for by the printing of valuable summaries and selections from the Forester's mail.

Before the August number of this magazine had gone through the press, the appointment of Mr. S. T. Starrett of California to fill the new office of marketing superintendent for the Territory had been announced in the newspapers. The event is one of great satisfaction. Mr. Starrett made a report of a preliminary trip over a considerable portion of the Territory, which the editor hopes to obtain for publication in full in the October number.

Part of the title page of the Journal of the Jamaica Agricultural Society is this elevated sentiment: "Agriculture is a profession and occupation in which a man may spend a lifetime, and at the end of it be able to say, in all sincerity, that he has still got far more to learn than he knows. It is only the ignorant who have nothing more to learn."

Commissioner Judd saw fourteen hundred acres in beautiful corn at Waimea. At Kapoho he found a homesteader who had made $2000 the past year in raising sugar cane for a plantation mill. Surely here are luminous proofs that sugar is not the whole thing in Hawaiian agriculture, and that the homesteader properly situated can live handsomely off sugar. Put the two things together and several problems of Hawaii are solved.

PUBLICATIONS.

Report of the International Commission on the Control of Bovine Tuberculosis, 1910. A copy of this has been received from the Department of Agriculture of Canada among other publications from the same source. It is the first report of the commission named, which was appointed by the American Veterinary Medical Association at its annual meeting in Chicago in 1909, and was presented to that body at its annual meeting in San Francisco last September. The commission was a highly representative body, including university specialists, packing industry experts, livestock association men, and board of health and experiment station professionals, nine members being from the United States and five from Canada. The president was J. G. Rutherford, C.M.G., V.S., H.A.R.C.V.S., Veterinary Director General and Live Stock Commissioner of the Dominion of Canada; and the secretary, M. H. Reynolds, D.V.M., Professor of Veterinary Science, College of Agriculture and Experiment Station, University of Minnesota. There is some food for local pride in the discovery from the report that some of the findings and recommendations of the commission have been anticipated by the action of the Territorial authorities of Hawaii, following the initiative of the municipal government of Honolulu in legislation for pure milk. Some disconnected extracts from the report follow:

" There should be no sale or exchange of animals affected with tuberculosis except for immediate slaughter or for breeding purposes under official supervision."

It is held (1) " That tuberculin, properly used, is an accurate and reliable diagnostic agent for the detection of active tuberculosis.

"(2) That tuberculin may not produce a reaction under the following conditions: (a) When the disease is in a period of incubation. (b) When the progress of the disease is arrested. (c) When the disease is extensively generalized. The last condition is relatively rare and may usually be detected by physical examination.

"(3) On account of the period of incubation and the fact that arrested cases may sooner or later become active, all exposed animals should be retested at intervals of six months to one year.

"(4) That the tuberculin test should not be applied to any animal having a temperature higher than normal.

"(5) That any animal having given one distinct reaction to tuberculin should thereafter be regarded as tuberculous.

"(6) That the subcutaneous injection of tuberculin is the only method of using tuberculin for the detection of tuberculosis in cattle which can be recommended at the present time.

"(7) That tuberculin has no injurious effect on healthy cattle."

"This commission recognizes that the discovery of tuberculosis in animals slaughtered for food purposes furnishes one of the best possible means of locating the disease on the farm, and therefore recommends the adoption of some system of marking, for purposes of identification; all cattle three years and over, shipped for slaughter. As tuberculosis of hogs is almost invariably due to bovine infection, this recommendation should also be made to apply to hogs of any age shipped for slaughter."

Among other recommendations are the following: "If the herd is found to be extensively infected, as shown by the tuberculin test or clinical examination, even the apparently healthy animals in it should be regarded with suspicion, until they have been separated from the reacting animals for at least three months. If, after the expiration of this time, they do not react to the tuberculin test, they may be considered healthy and dealt with accordingly. It is recommended that a herd extensively infected should not be treated by the method of general separation, but that the construction of a new herd from the offspring only is desirable.

"If the herd is found to contain a relatively small proportion of diseased animals, separation of the diseased animals from the healthy animals, and the construction of a sound herd from the healthy animals and the offspring of both is advocated." (As a working basis it is advised that herds containing fifty per cent or more of diseased animals be treated under the first plan, under fifteen per cent according to the second plan, and herds falling between these figures graded at the option of the owner.) "That it shall be the prerogative of the owner to reject either plan and have his herd dealt with by removal and slaughter of diseased animals, with or without compensation according to the public policy in operation. * * * In the event of any owner refusing or neglecting to adopt either of the above methods, his entire herd to be closely quarantined, and sales therefrom to be entirely prohibited.

"That a policy of compensation be recommended as useful and usually necessary as a temporary measure.

"That, when slaughter is necessary, in order to avoid economic loss, every effort should be made to utilize as far as possible the meat of such animals as may be found fit for food on being slaughtered under competent inspection."

"That, with the object of preventing the spread of infection, persons buying cattle for breeding purposes or milk production should, except when such purchases are made from disease free herds, which have been tested by a properly qualified person, purchase only subject to the tuberculin test. In order to assist in the proper carrying out of this suggestion, the commission recommends that official authorities should adopt such regulations as will prevent the entry to their respective territories of cattle for breeding purposes or milk production unless accompanied by satisfactory tuberculin test charts.

" That all milk and milk by-products used as food should be properly pasteurized unless derived from cows known to be free from tuberculosis.

" That the commission recommends the passage of legislation which will prevent the sale, distribution or use of tuberculin by any persons other than those acting with the full knowledge, or under the direction, of official authorities."

" In concluding its work the commission desires to especially appeal to the press, metropolitan, agricultural and local, to join in the work of extending as much as possible among the people the conclusions here arrived at. The vital importance of the life of farm animals to the welfare of all classes of society needs no argument in its support. The aim and sole purpose which has actuated this commission has been to arrive at the soundest conclusions possible in the light of the best knowledge obtainable."

" While the members recognize that the subject with which this commission is primarily intended to deal is the control and eradication of tuberculosis among animals as an economic problem, they cannot feel satisfied without declaring their recognition of the fact that tuberculosis is also an important public health problem. Considered as such, the eradication of tuberculosis among animals should have the approval and support of all those persons who are interested in curtailing human suffering and prolonging human life."

" The control, to say nothing of the eradication, of bovine tuberculosis, is impossible of achievement without the hearty cooperation of the men who are actually engaged in the cattle industry. In order to secure this cooperation, it will doubtless be necessary, in most communities, to carry on an active and prolonged educational campaign."

" The best law ever framed can be made an utter failure by stupid or injudicious administration, while, on the other hand, the most drastic legislation can be rendered acceptable if enforced with reasonable tact and diplomacy. Provided, therefore, that these qualities, combined with integrity, thoroughness and determination, are available for administrative purposes, the members of the commission are convinced that the enforcement of a law based on their recommendations will prove to be far the most powerful and effective educational agency which could possibly be employed."

Reports of committees are appended to the main report, upon which the conclusions of the latter are to a considerable extent based. One is from Hon. W. D. Hoard, ex-Governor of Wisconsin and editor of Hoard's Dairyman, and it urges the value of demonstration work. Mr. Hoard says that the great progress they had made in legislation in Wisconsin, and in securing a wide-spread acquiescence in the use of the tuberculin test, would never have come had it not been for a large number of public demonstrations held in various parts of the State.. He proceeds to say:

" We have gone as far as this in legislation: that after December 1, 1910, all animals sold for breeding or milking purposes must first be tuberculin tested. This, I believe, is a step farther in advance than has been taken by any other State. It shows well the tone and temper of our farmers and the work which has been done to acquaint them with a true understanding of the situation. It is needless for me to say that if they are for the law, or any law, it goes; if they are against it, it is at best a dead letter. It is worth a great deal in the promotion of such objects to have a livestock sanitary board in a State, that will take hold and lead in this work. In too many instances these organizations are purely negative in their influence, and so nothing is done. There is a notable lack of funds to bear the expense of demonstration work. The farmers everywhere would willingly be taxed for its support. Municipalities could well afford to have such expense for the sake of the education it would afford to consumers of meat and dairy products."

Beef Raising in Canada. This is bulletin No. 13 of the livestock branch of the Canadian Department of Agriculture, and a big one, too, for it contains 112 pages and is handsomely illustrated. While much of its technical information and advice will not be applicable to cattle raising in these islands with their mild climate, there is a great deal that will prove both interesting and valuable to Hawaiian ranchers, dairymen and farmers. The pamphlet will be placed in the library at the government nursery.

Horse Breeding and Rearing of Colts is bulletin No. 14 from the same scource as the last mentioned. It contains but 13 pages of letterpress, yet appears to be as full of practical information as an egg is full of meat. In the introductory remarks, Dr. Rutherford (the author and the man named above as chairman of the International Commission on Bovine Tuberculosis) says "the scrub horse is always a drug in the market, and is sure to be less and less in demand as time passes and public taste in this respect becomes more fastidious. On the other hand, the good horse was never in greater request than he is today. All over the civilized world the prices paid for the good horse of any distinct class are on the rise, and the man who has him or can breed him is sure of his market and his money. This being the case—and that it is so is capable of easy demonstration—it behooves us to do our best to find out how to obtain him."

Proceedings of the Agricultural Conference Held in Connection with the United Provinces Exhibition at Allahabad in January, 1911. This is a pamphlet of 134 pages. Its contents give a rare insight into the strivings after the attainment of modern agriculture among one of the most conservative peoples of the world. The discussions of the conference treated of the staples of wheat, sugar, cotton, etc., also dairy farming and rural and urban cooperative credit societies, of these last mentioned institutions remarkably good results in the promotion of agricultural and mechanical industries being reported. Enclosed with the pamphlet were bulletins respectively on the cultivation of lucerne and on the foot and mouth disease. The former of these may be worth the while of our stock raisers to peruse, in connection with the long quest for the best fodder plants for Hawaii.

Manurial Experiments with Sugar Cane in the Leeward Islands, 1909-10. This is a brochure of fifty-six pages of the pamphlet series of the Department of Agriculture for the West Indies. Probably its findings will be of interest and usefulness to any of our sugar cane planters who may care to look it up in the bureau library.

FOREST NURSERIES FOR SCHOOLS.

(In connection with the school gardens movement promoted in Hawaii by Professor MacCaughey and others, the following extracts from Farmers' Bulletin 423 of the U. S. Department of Agriculture, under the above title, ought to prove of great interest in this Territory. The technical parts of the bulletin only are omitted, as the treatise deals mostly with trees that are not suitable for the Hawaiian soil and climate. If, however, the matter of forest nurseries for schools be taken up here, the Territorial Bureau of Forestry, together with the College of Hawaii and the Hawaii Experiment Station, may be relied on to furnish the technical directions to teachers and pupils which may be required.)

INTRODUCTION.

In recent years there has been evident a decided movement toward the introduction of nature study and elementary agriculture into the regular work of the public schools. One of the most popular and interesting features of this movement has been the school garden. The large number of schools, both rural and city, which have established gardens, and the volume of literature which has been contributed on this subject, attest the importance and success which the school garden has achieved in the educational world.

Hitherto most school gardens have been devoted exclusively to the growing of common garden vegetable and flowering plants, with here and there the introduction of new species as an additional incentive to interest. One of the chief difficulties encountered has been that most of the plants and vegetables suitable for cultivation and demonstration purposes required by the school work mature or reach their most interesting stages at a season when the school is ordinarily closed for vacation. Another thing which has tended to make much school-garden work somewhat unsatisfactory is that after the work is once done no visible, tangible results are evident, and apparently no lasting good is accomplished other than the instruction given and the knowledge of plant life which may have been acquired.

A school nursery for the propagation of forest trees offers an interesting variation from the usual type of gardening and at the same time overcomes the difficulties just mentioned. The crop of the forest nursery is one which does not disappear with the close of the season, but instead the young trees need only to be transferred from the nursery bed to some new location on lawns or school grounds to become permanent evidence of the work done and a lasting tribute to the school. Furthermore, this work of transplanting the trees is best done early in the spring when the school is in session and at its best so far as the interest of the pupils is concerned. In this way the forest nursery is even more adaptable to school use than is the ordinary garden.

A nursery on the lines, laid down in this circular will not require any more labor and attention than a garden, if as much, with the possible exception that there is the added necessity of collecting and storing the tree seeds through the winter. However, if this is found impracticable, tree seeds may be purchased, just as vegetable seeds are, from dealers. The actual work of caring for the nursery is practically the same as that required for the care of the garden. The ground for the seed beds is prepared in the same manner, and the seedlings require about the same amount of attention that the vegetables do. On the other hand, the results will be much more enduring and valuable. Besides the opportunities afforded by the nursery for study and instruction, the trees which are successfully grown will, if wisely utilized, be a source of comfort, beauty, and even profit to the school or community for years.

The plan outlined in this bulletin is intended to furnish suggestions and directions by which a school may establish and care for a small nursery. It is realized that schools will seldom have the best kind of soil available, or be supplied with all the tools desirable to do this work with the best results. Consequently, the attempt is here made to give directions which will be applicable to schools with very limited resources.

It is intended, further, to make these plans usable over as wide a range of territory as possible. Certain localities, with unusual conditions of temperature or humidity, will undoubtedly face local problems which are not touched upon in this bulletin. In all such cases the Forest Service of the United States Department of Agriculture invites correspondence with regard to the difficulties encountered, and will gladly furnish advice and suggestions free of charge.

Extent of the Undertaking.

Work of this nature should never be undertaken on too large a scale. If too many seedlings are planted, the care of the nursery may prove so much of a burden that the students will find no pleasure in it, and when the trees are grown it will be hard to dispose of them without loss. Should the trees die, the natural inference on the part of the pupils would be that the work done by them in caring for the young trees was useless. It should therefore be the endeavor of each school to raise but a few trees per pupil, but to grow these successfully and to transplant all of them with the smallest possible loss to permanent sites on the school grounds or about the homes in the community for shelter, timber, or ornamental purposes. This aim must be impressed upon the pupils if the lesson of the value of forest trees is to be taught. If only one tree per pupil is grown, but every one safely transplanted to a permanent site where it may grow into usefulness and beauty, the work of the nursery will be infinitely more satisfactory than if hundreds of seedlings are produced and many of them allowed to perish.

Cooperation Between Schools.

It will add greatly to the pupils' interest in the tree nurseries if schools located in different parts of the country exchange supplies of tree seeds. It is suggested, therefore, that each school endeavor to communicate with some other school situated in another locality, and by exchange secure some new varieties of tree seeds and introduce these new and unfamiliar trees into the community. It will be much more interesting for the pupils to watch the growth of a strange type of tree than merely to produce those with which every one is already familiar, and, should the experiment be successful, these new trees may be made to serve a useful purpose if they are awarded as prizes for faithful work done by individual pupils. Care must always be taken, however, not to experiment too much with trees which are not likely to thrive because of the climate or other local conditions.

The Care of the Nursery During Vacations.

One of the most difficult problems which the school will have to solve will be how to care for the nursery during the summer vacation. It will not do to leave the young trees which were planted during the spring term to take care of themselves through the hot months of July and August until school opens again in September. Some means must be devised to protect and care for them during this time. Just how this will be accomplished depends largely upon the ingenuity of the teacher and upon local conditions.

It is evident that some sort of an organization on the part of the pupils whereby they shall voluntarily assume the duties of caring for the nursery is infinitely more desirable than any other plan, because it will insure the continued interest and attention of the school to its project. No definite outline of the exact form which this organization shall assume is possible in this bulletin, because of the varying conditions surrounding different schools; but there are certain things which it must accomplish in order to serve its purpose successfully. Provision must be made for the regular cultivation of the seedlings by hoeing and weeding once or twice each month, or oftener, during the summer. They must, as a rule, be watered with more or less frequency, depending upon the season. If the site of the seed bed is exposed to trespassers or to the depredations of animals, it must be protected by fencing. All this must be done thoroughly and without fail or nothing but disappointment will come of the undertaking, and the resulting discouragement will be worse than if nothing had been done.

How to accomplish these ends will be a problem which each school will have to work out for itself. Possibly one solution would be the organization of a "forestry club" composed of volunteer "forest rangers" whose duties shall be the protection and care of the trees, just as the government officers look after the trees of the national forests. These clubs may be the means of doing much good through the interest which they arouse in general forestry, as well as through the practical benefit derived from the nursery itself. The clubs could also arrange for an exchange of supplies of tree seeds and even of nursery stock, thus doing exactly the same work that commercial nurseries undertake in supplying new varieties of trees suitable and desirable for the community.

Choosing Ground for the Nursery.

The bed in which the seeds are to be planted should be located on ground which is well drained. Level or gently sloping ground should be selected, for if it is too steep the soil may be washed away. If possible to secure it, ground which has been under cultivation for a year or more and which is well pulverized is better for the purpose than new ground. Sometimes the use of such ground can be secured on the edge of cultivated fields or gardens bordering on the school grounds.

Care should be taken to select a site away from the playground, where it will not be trampled upon. Unless the plat of ground to be used is protected properly in this respect, all work done may be useless.

If there is any choice to be had as to the kind of soil, a loose, sandy loam should be chosen rather than clay. In the majority of instances, however, schools will have to be content to put whatever soil is available into as good condition as possible under the circumstances. It is well to have the seed bed in a place where it will not be exposed too directly to the sun. If possible, it should have a partial protection by being situated to the east or north of a group of trees or buildings.

Preparing the Soil.

Unless the land to be used is very rich and in good condition for the nursery, it is well to enrich it in the fall with well-rotted manure. The ground should then be plowed or spaded deeply and left without further preparation during the winter. In the spring, as soon as conditions will permit, it should again be worked over with a spade or plow and thoroughly pulverized by raking and harrowing, until all clods, stones, and rubbish have been removed. The better the condition of the soil the better the results will be. Too much attention can not be given to the preparation of the soil.

Wrapping and Packing.

Uprooted seedlings suffer more or less when exposed to the wind and sun if only for a few moments, so great care must be taken to protect them. Sunny and windy weather should be avoided when transplanting trees, and the seedlings taken up only on cloudy, damp days. As they are lifted from the soil they should be laid in piles, roots together, and the roots immediately covered with a few shovelfuls of moist earth until they can be wrapped in wet burlap or coarse cloth of some sort. If they are to be sent any distance the roots of the trees should be carefully packed in damp moss or chaff, and the whole securely wrapped with the burlap.

Cultivation of the Nursery Bed.

The trees transplanted to the nursery beds should be cultivated frequently, but not by deep plowing or spading, which would injure the roots. The weeds must be kept down and the ground kept loosened to a depth of 2 or 3 inches. The care of the nursery stock is in every way similar to that of the seedlings in the seed bed.

Planting of School Grounds.

The final disposal of the trees grown in the school nursery is a matter of much importance. The success of the whole undertaking will depend largely upon how many strong, desirable trees can be saved and planted in permanent sites where they will benefit the school or the community.

Naturally, the first location which suggests itself as a suitable planting site is the school ground itself. Many school sites are without trees of any sort. Others are filled with trees of undesirable species which can be replaced by better ones. Almost without exception school sites can be improved by judicious tree planting.

Before beginning to set out the trees a detailed planting plan should be prepared. This should show the locations of the buildings and features of the school ground which will affect planting, and should show specifically where the trees are to be planted. This plan should provide a definite scheme to be followed in the decoration and protection of the grounds and should be carefully worked out and as carefully observed. No specific directions for such a plan can be given here, but the following general rules should be observed:

(1) Sufficient space should be first of all set aside for a playground and no trees planted where they will interfere with this. A very desirable feature is to provide an open lawn directly in front of the building.

(2) Group the trees in masses as much as possible instead of scattering them singly. This will give a better effect in beautifying the grounds and afford better shelter.

(3) Avoid planting the trees in straight, formal rows. Plant in irregular groups, or along curved lines as much as possible. A shelter belt along the rear and possibly the sides of the grounds is desirable, especially along the north side, or the sides from which the most storms come.

Distribution Among Pupils for Home Planting.

It is probable that if the trees grow well in the nursery and are of desirable species, there will be a demand for them on the part of the children or their parents for planting about their homes. As elsewhere suggested, especially desirable young trees of new or rare species may be awarded as prizes to those pupils who have shown the greatest interest in the nursery or have been most faithful in their work. The awarding of these prize trees might well form a very appropriate exercise for an Arbor Day program. When trees are to be taken to the homes of the pupils, special care must be taken to see that they are properly wrapped and packed, and the roots kept moist until transported to the final destination. Pupils should be instructed to plant the trees as soon as they are unwrapped.

Making a School Woodlot or Forest Plantation.

In some localities it will be possible for the school to perform a service to the community and at the same time put into practice one of the most important lessons of forestry by using the nursery trees to reforest some tract of land from which the timber has been cut, or to establish a practical woodlot on some piece of unused land. Very frequently there will be found in the vicinity of the school hillsides which are badly eroded, and the owners would be only too glad to have this erosion checked by the planting of forest trees on the slopes. Possibly a small field or lot which has been sown to ordinary farm crops so long that the soil is worn out will be available. Trees will grow well in such soil. Perhaps a small point of land, cut off from cultivation by streams or deep ditches, can be found; or some farm owner of the neighborhood will want to start a woodlot or plant a shelter belt on his place. In any of these cases the practice of actual forestry afforded by this means of disposing of the trees gives one of the best possible solutions of the problem. The results will be self-evident and hence will be the source of much pleasure and pride to the school. Another advantage is that small seedlings, one or two years old, may be used for establishing forest plantations of this kind, whereas larger trees are preferable for planting for shade or ornament.

It will be extremely desirable, if the school has opportunity to establish a plantation of the sort mentioned in the preceding paragraph, to secure expert advice as to the best methods of planting and caring for the trees.

Sale of Nursery Stock.

Young forest trees, suitable for planting in woodlots or forests, can frequently be sold for good prices. Cities and towns may want them for street and park planting; or the farmers of the vicinity may purchase them for planting about their homes. It will frequently be possible for the school which has had reasonable success with its nursery to sell the trees and derive considerable profit from this source. If there is a commercial nursery in the vicinity the stock of trees may be sold to it. This method of disposing of the trees will not give the satisfaction resulting from seeing the trees grow to maturity in the woodlot or school grounds, but most schools can make good use of any funds derived from the sale of the trees.

COTTON GROWING IN THE WEST INDIES.

In most of the cotton-growing districts of the West Indies, sowing will have been completed by the end of last month, while, in some cases, the seed will have been planted as early as May. In all cases, the seed should have been carefully selected and disinfected, either by the planter himself or by the agricultural authority in the island; in some cases, this will have been done, under expert supervision, at the ginnery from which it was purchased. Where the cotton has not yet been sown, great care should be taken to ensure that proper selection and disinfection of the seed to be employed has been carried out. In connection with the disinfection of seed, it may be useful to remind the grower that the strength of the corrosive solution to be used for the purpose is 1 part of corrosive sublimate in 1,000 parts of soft water or rain water, that is 1 oz. of corrosive sublimate to 7 gallons of water, or 1 lb. to 100 gallons; where the water is hard, and rain water is not obtainable, the solution should be slightly stronger. The best way to make up the solution is to dissolve the corrosive sublimate in a suitably small quantity of water, and then to add this to the larger quantity of water that is required to bring the solution to the proper strength. As is well understood, the tubs for disinfection should be made of wood, and should have been allowed to stand for a few hours, filled with some of the solution, before they are used for treating the seed. This is then poured away, freshly made solution added, and then the seed is stirred into the solution and left for ten to twenty minutes.

In planting, two or three seeds are usually placed in holes about 2 feet apart, in rows about 4 feet apart. This is a distance that has been found generally useful, though in any particular instance, the nearness of the plants to one another will depend on the nature of the soil: in poor land they will be farther apart than in rich soil. A fortnight after sowing, provided that the plants have made reasonable growth, they are thinned out, so as to leave one in each hole. Where for any reason, such as the lack of rain after sowing, the seeds have not germinated, the empty holes should be supplied by sowing fresh seed; it is of little or no use to attempt to do this by transplanting.

A short time after the plants have been thinned out, they should be moulded up, in order to enable them to resist the wind, and this should be done again when they are somewhat more than a foot high. In using the hoe for moulding up, the laborers should be careful not to injure the plants, particularly where they are likely to be attacked by black arm or red maggot.

The cotton should be weeded regularly throughout the season, until the bolls begin to open, and during dry weather it should be given light cultivation, where this is feasible, in order to maintain a soil mulch for the conservation of water. In this weeding and cultivation the same precautions must be taken against injuring the plants as are indicated above for the first weeding.

The chief matter to be realized in cotton-planting and cultivation in the West Indies is that the plant requires continuous attention—an attention almost as intimate as that needed in what is sometimes termed garden cultivation. It is only by fulfilling this requirement that an adequate watch for insect and other pests can be maintained, and the receipt of a profitable return may be ensured.—*Agricultural News,* July 8.

FOWLS FOR TABLE.

It is a common practice to take fowls from the yard, kill them right away and have them cooked and on the table in a couple of hours. Attention to a few little hints will greatly improve the meat. First, the fowls meant to be eaten should be put in a coop a week before, the coop should be kept clean, these fowls should be fed as much as they can eat of soft food, no hard corn, cornmeal, banana, cocoanut, scraps of any kind, with plenty of water put in fresh every day. The particular fowl meant for the table next day should not be fed for 12 hours before killing, and even in the hot weather can be killed the evening before and hung up in a cool place. At the latest it should be killed 12 hours before eating.

THE CULTURE OF COFFEE.

First of all, I must explain that nearly all I know of this subject I have learnt from my father, who is an old cultivator and who is alive today. He is an oldtime cultivator who is very successful with his coffee. I, myself, although not giving all my time to cultivation, am very much interested in it, but the piece of coffee that I now have was not planted by me, but was an old, thrown-up cultivation which I bought seven or eight years ago, supposed to have been bearing for over fifty years. There are trees there that no one can reach save they climb them, they are so tall and the stems are so thick.

After acquiring this piece of land, I did not think much of the coffee, but paid attention to the grass because it is a hobby of mine to keep horses, as I am a special lover of that animal and I wanted the grass for feeding my stock. However, I planted yams through some parts of the coffee, and I found that where coffee trees were near where I had been digging the yam hills, they revived very much and began to bear quite heavily. On noticing this I put myself to the task of cleaning out the whole of the coffee, which was full of grass and weeds. This being done, I found the trees were far too tangled and thick; I therefore next paid attention to letting in air by gradually cutting the bad trees out so as to leave the other trees standing as regularly as possible and to let air in all round and above. At the same time I planted catch crops of corn and peas through the trees so as to be forced to keep the coffee clean and get a little return. I also paid regular attention to the young shoots which came up from the coffee, selecting them so as to regulate the shape of the trees somewhat. There was a lot of work in this, but I set myself to the task of taking the last hour I spent on my field the days I was there, regulating the young shoots. I cannot at this stage speak of a manured piece or a pruned one, but I hope soon to get my coffee along to this stage. Owing to my coffee having enough room and sufficient air, the berries are always well developed if they are favored with good rains at all, but on the contrary, where trees are crowded and thick the berries are lighter in weight. The coffee tree I find not only deep-rooted but a superficial feeder as well, and I am sure that mulching and manuring will greatly improve the weight of the coffee. When the coffee trees are ripening, I would advise:—(1) That they should never be stripped, but should be stem-picked. (2) None but the cherry ripe berries should be taken off for pulping. (3) They should be pulped before they ferment. (4) The pulped berries should be fermented without water overnight and then washed as clean as possible in the morning. (5) They should then be drained. (6) The berries should be spread out as thin as possible on a barbicue, and should it rain before they are properly quailed, they need not be taken up. After they are quailed they must never get wet again, nor should they ever be put out on a wet barbicue. The drying should be continued till "quailed," then they should be put out on alternate days and never put up closely until all fermentation is off, which can be known by pushing the hand down to the bottom of the receptacle without encountering any warmth. (7) After this, the berries should be occasionally thrown out to keep them hard for milling, when they should be in a bone-dry state. The berries should then be sunned again. (8) Before pulping, the pulper should be well set so that there will be few bruised and broken berries, as these would spoil what would otherwise be a first-class sample.

My ambition to be a good coffee grower began with the first Porus Agricultural Show, where I competed with others in the locality and the surrounding neighborhood. I was then first and second in the clean and parchment coffee. I was then further stimulated by the *Daily Telegraph* competition open to the whole island. I took first and special in December, 1909. The next Porus Agricultural Show again brought me first and second prizes in settlers classes both in clean and parchment. At Knutsford Park Show last February, I again competed against the whole island, and I was again successful with the second and third prizes in clean coffee and first in parchment coffee. At Bybrook Show in March I was first and second in clean and second and third in parchment. I also took second in clean and parchment at the last Kendal Show, but I have not yet received the prize money.

Now, I am asking those cultivators present and well interested, never to treat too lightly the small things of life and to do everything thoroughly that needs doing.

The price of coffee will yet become good. I have often predicted this, and I have been satisfied to grow coffee with this hope, and would ask all of you who are coffee cultivators to do your best with this product that will help our little town and district and the island to rise to prosperity again.—W. A. MORGAN, in Journal of the Jamaica Agricultural Society.

INFLUENCE OF TIME IN MILKING.

It is commonly supposed that the milk produced by cows in the morning is larger in quantity and poorer in quality than the milk produced in the evening.

This fact is due to the longer period which elapses between night and morning milking, and the shorter period between morning and night. It has been shown, however, that as the periods between the milkings approximate in length, so does the milk approximate in quantity and quality. In a public test made by a public authority ten cows were divided into two lots of five, and specially milked for eighteen days. Five cows were milked at 8 a. m. and 4 p. m., and five at 6 a. m. and 6 p. m.

The result was precisely what is usual. The cows milked twelve hours apart gave nine pints of milk daily more than those which were milked at varied intervals. Again, the milk produced after regular intervals was richer than the morning's milk produced at unequal intervals, for it contained 4 per cent. of fat, as against 3.6 per cent., and was therefore 1 per cent. above the standard.

If the same results were obtained in general practice, the question of the standard would be settled once for all, for it would remain entirely in the hands of the owners of the cows, although they would probably complain that business necessitated milking at unequal periods.

Naturally, the milk of the evening was the richest. We refer to that drawn at four o'clock, for, speaking roundly, the shorter the interval after the morning's milk the richer the milk. In both cases, however, the solids other than the fat of the milk were practically identical.

The results, which simply confirm many similar experiments in the past, are much too important to be put to one side. They plainly show that the objects of those who are constantly agitating against the milk standard of 3 per cent. of fat are unwarranted.

If men insist upon milking cows with a long interval and a short interval, instead of at equal intervals, they must expect difficulties to arise.

For instance, if cows are milked at six in the morning and two or three in the afternoon, the latter milk will be rich, and the former systematically poor by comparison.

The consequence is that on occasion the morning's milk may be sampled and condemned, and the standard also condemned, but in this case by the owner of the cows or the milkman who sells the milk.

Our contention is that under normal conditions healthy herds never produce milk containing less than 3 per cent. of fat. If cows were milked twelve hours apart, the quality would rise in so marked a manner in the morning that, so far from there being any danger of its being below the standard, the standard itself might be raised with perfect safety to the producer and with great advantage to the public.—*Farm, Field and Fireside.*

OF INTEREST TO BEEKEEPERS.

An Important Government Decision that Indirectly Favors the Honey Business—Saccharin Barred from Foods After July 1, 1911.

(From Gleanings in Bee Culture.)

Two or three years ago we had considerable to say on the subject of saccharin—a product of coal tar, and hence poisonous as a sweetening for jellies, jams, beers, and soda waters. We explained to our readers time and time again, that any product of coal tar, when used in food, was injurious. The fact that it is 300 times sweeter than cane sugar makes it very cheap; and the manufacturer of sweet pickles, jams, and jellies, and the brewers, have been using large quantities of it in place of the more expensive sugar. We have been told that a large percentage of the soda water fountains have been using the product.

We have been hoping for some years that there would be a government decision that would bar the use of saccharin; and now our dear Uncle Sam has given a fair warning that on and after July 1 its use must be discontinued. This is what he says:

U. S. Department of Agriculture,
Office of the Secretary,

Washington, D. C., April 28, 1911.

The Secretary of Agriculture has today issued a decision, based upon a finding of the Referee Board of Consulting Scientific Experts, which forbids the use of saccharin in food on and after July 1st next. The decision is under the Food and Drugs Act, and will prohibit the manufacture or sale in the District of Columbia or the Territories of foodstuffs containing saccharin, as well as interstate commerce in such foodstuffs. The finding of the Board is the second since its creation, and is regarded as very sweeping, inasmuch as the decision affects more than thirty different classes of foods. Some of the articles affected are soft drinks, sweet pickles, jellies, and jams, and, in some instances, beer.

The decision as promulgated is signed by the Secretary of the Treasury, the Secretary of Agriculture, and the Secretary of

Commerce and Labor, in order that the regulations embodied in the decision may be put into effect. The decision follows:

"At the request of the Secretary of Agriculture, the Referee Board of Consulting Scientific Experts has conducted an investigation as to the effect on health of the use of saccharin. The investigation has been concluded, and the Referee Board reports that the continued use of saccharin for a long time in quantities over three-tenths of a gram per day is liable to impair digestion; and that the addition of saccharin as a substitute for cane sugar or other forms of sugar reduces the food value of the sweetened product, and hence lowers its quality.

" Saccharin has been used as a substitute for sugar in over thirty classes of foods in which sugar is commonly recognized as a normal and valuable ingredient. If the use of saccharin be continued it is evident that amounts of saccharin may readily be consumed which will, through continual use, produce digestive disturbances. In every food in which saccharin is used, some other sweetening agent known to be harmless to health can be substituted, and there is not even a pretense that saccharin is a necessity in the manufacture of food products. Under the Food and Drugs Act, articles of food are adulterated if they contain added poisonous or other added deleterious ingredients which may render them injurious to health. Articles of food are also adulterated within the meaning of the Act if substances have been mixed and packed with the foods so as to reduce or lower or injuriously affect their quality or strength. The findings of the Referee Board show that saccharin in food is such an added poisonous or other added deleterious ingredient as is contemplated by the Act, and also that the substitution of the saccharin for sugar in foods reduces and lowers their quality.

" The Secretary of Agriculture, therefore, will regard as adulterated, under the Food and Drugs Act, foods containing saccharin which, on and after July 1, 1911, are manufactured or offered for sale in the District of Columbia or the Territories, or shipped in interstate or foreign commerce, or offered for importation into the United States."

We regard this as one of the most important and far-reaching decisions that have been rendered by the general government for a long time. Dr. Wiley, of the Bureau of Chemistry, and the time-honored champion of pure food, has long opposed the use of saccharin. The fact that he is now supported by his associates, and by those higher up, is a matter of no little importance. It is going to mean a big boost to the bottled-honey business that has heretofore had to compete with saccharin-sweetened jellies and jams, and some glucosed products that could be sold for less money than honey. It will mean, too, that comb honey will also have a larger sale, although it has never belonged to the class of cheaper products.

In spite of the corruption in high places, in spite of the graft and wholesale bribery in some of our legislatures that have been revealed lately, the world is moving to higher and better things. It is moving, because graft will be no longer tolerated. The legislators who had a price for their votes will be relegated to the past. When that day comes, we shall expect that all the injurious patent medicines, as well as all medicines containing large percentages of alcohol, and all injurious food products—injurious because they contain preservatives and injurious flavorings—will be barred from the stomachs of our American people. The day is almost here now.

Bees and Poultry.

It may be interesting to our senior editor to hear that he is not the only poultry enthusiast connected with *Gleanings,* but that we are also "in the ring of poultry cranks." To tell the truth, keeping poultry works well with bee-keeping if the person so engaged understands the management of the combination. We have become entangled in these two lines of work for two reasons: First, because of the old saying, that a busy business man should have some kind of hobby on which to spend his spare time, and thus divert his mind from his cares. We have always suggested that there is no other side line like bee-keeping for busy men. But why have we never thought about a hobby for the busy business bee-keeper? It might be said that for him "more bees" would be a remedial measure; but would not that make his business life still more strenuous? For this reason we have made fancy poultry-keeping our hobby, and we like it immensely, as we get a lot of fun out of it.

The second reason has been the fact that, aside from the pleasure that we have gotten out of the hobby, we have found this new venture so remunerative that we have had to increase our poultry business to such an extent that it is really not a hobby any longer. The consequence is, we now have two businesses to look after, and will continue them as long as they work as well side by side as they have. Since most of the poultry work is early and late in the day, while the bee work comes in between these two periods, the combination works very nicely; and as long as we get our share of profits from both, as well as a lot of real pleasure, why should we not combine them? Of course, we are well aware of the fact that this is a time of specialty in all lines of work, and this is what we are trying to adhere to even now. Can we do it? We are trying to make a specialty, and strictly so, with our bees; at the same time we are trying to do the same with the chickens. Can we?

The Value of a Good Armor.

Time and again we have been in position to show that it pays in the long run to be well armored for extensive work in the apiary, especially if a great deal is to be accomplished. We have often had arguments presented to us to show that it is not so necessary to be protected absolutely by a good veil and by gloves. While all this advice may work very nicely with a few colonies of very gentle bees, we have not been able for many years to work our own apiaries in that manner. While we did not believe in wearing even a veil during the first eight years of our bee-keeping career, bearing many a painful sting unnecessarily, we do not work in the apiary without gloves. The veils we have adopted are much more substantial than the flimsy makeshifts with which we were satisfied at first. These are now made of wire cloth, very much like the Alexander veil, but so that they can be worn with a hat—a thing that we must do here in the South. With such a veil, gloves on our hands, and every thing else bee-tight, we have stood our ground when "the other fellow" was retreating from a sudden onslaught. Of course, we realize that our bees are much more vicious than ordinarily. This is generally the case where they are handled in a hurried fashion. In this respect we believe they are very much like the Coggshall kind of which we used to read so much; and we venture the assertion that, where bees are handled by lightning operators to any extent, they are not the gentle kind that can be handled without veils and gloves.

It has been argued that slower manipulations should be practiced in preference to the rapid lightning methods of some of our most extensive bee-keepers; but we have found, after trying this, that, unless we got a more lightning-like move on us, we were not able to accomplish as much. And in our mind this is the only real business way of wholesale bee-keeping—a system whereby the maximum amount of work can be done in the shortest length of time, by which every cut-and-dried short-cut and labor-saving method can be put into play with good results.

THE IMPORTANCE OF THE FARM WOODLOT.

By Professor J. A. Ferguson.

(*From the Penn State Farmer.*)

We often fail to realize the value of farmers' woodlots. To the country at large their importance will increase as the supply of saw-timber becomes gradually less. There is today more land covered by farm woodlots than is owned by the National and State Governments combined. Of the eight hundred and fifty million acres of forests which formerly covered our country but two hundred million acres remain to be cut. Since we are cutting our timber three times as fast as it grows, the time is not far distant when trees suitable for sawing into lumber will be difficult to find. We are told that in fifteen years the greater part of the hardwood forests in the East will have been cut, and that we will then face a timber famine in saw logs. When that time comes the timber contained in the two hundred million acres and over of farm woodlots will form a supply of saw logs that will last this country for many years.

The woodlot is not only of value to the country at large, but it is of special value to the farm to which it is attached. In many regions it is a necessity. It has been said that every farm should have one-eighth of its area in a woodlot, which should furnish the farm with fuel and posts and enough saw logs to supply what lumber is needed for farm use. It should also furnish products for sale to help pay for taxes and other expenses connected with the woodlot. A woodlot should be a source of income as well as any other portion of the farm. It should furnish this amount of material indefinitely, without injury to the woodlot and without lessening the forest capital.

There are three reasons why farmers' woodlots are not producing this amount of material: they do not contain the right species of trees, there are not enough trees grown to the acre, the woodlot is not sufficiently protected from its enemies.

In forestry the aim is to make use of those trees alone which will give the product desired in the shortest time. Among the four hundred or more species of trees which are native to this country only a comparatively few are of any use in forest management. It should be the aim of every woodlot owner to determine what trees are best to grow in his woodlot. The owner usually relies too much on nature to make the choice of what trees shall grow. He cuts trees here and there and gives no thought as to what species shall grow in the place of those removed. As a result nature fills in the gap with the tree that happens to get a start, whether that tree is a slow or a fast growing species, or whether the timber is of value for farm use or is a weed tree. It is just as essential to remove the weed trees from the woodlot as it is from the garden crop. Nature grows the plant or the tree that will the quickest respond to the conditions, and it usually happens that the weed is better able to survive than the more desirable plants. Nature is no more capable of making a proper choice of trees in the woodlot than she is capable of discriminating in a garden crop. If the farmer wants to grow certain species of trees in his woodlot, he can do so only by judiciously thinning and weeding out the undesirable species, so as to give the trees he wishes to grow the advantage.

It usually happens that when a tree is removed from the forest there are no young trees of desirable species ready to respond to the increased light and fill in the gap. It has been the custom to look on young seedlings as of no value. The farmer reckons the value of his woodlot only on the larger trees. He does not realize that the future of his forest depends on the young seedlings and saplings that come in under the older trees. He allows these to be destroyed by grazing or by repeated fires or even cuts them out, as he thinks to better his forest conditions. The result is when a gap is made in the woods by the removal of a tree, there is nothing to grow up and fill in the vacancy, except weed trees that start easily, or else the ground becomes covered with weeds or a matting of grass that prevents by drying the upper layers of the soil the germination and development of seedlings from seeds. In such a case the only way to secure trees of the species desired is to plant them in the woodlot. Seedlings for this purpose can be purchased of nurserymen, or use can be made of seedlings of the right species found growing abundantly in other portions of the woodlot or the seeds of trees can be planted directly in the woodlot, or they can be planted in the garden and the seedlings grown for a year or two and then removed to the desired location.

The trouble with most farmers' woodlots is, there are not enough trees grown to the acre or else the woodlot is filled with useless trees. If from most of our woodlots the owner should remove the weed trees and those of the better kinds that are so ill-shapen or defective as to be of little value, there would be but few trees left to the acre. This condition has arisen from the general practice of constantly removing the better trees and leaving the poorer. If a tree is desired for cordwood the owner generally removes a straight thrifty tree, because it will split easily, rather than cut out an old gnarly, limby or defective tree. The result of this treatment is that the woodlot soon becomes filled with trees useless for any purpose on the farm and the owner wonders why his woodlot is running out. It is a common saying that a farmer cannot use his woodlot and maintain it in a thrifty condition. That this statement is so generally true is because of lack of thought and judgment in the selection of the trees to cut. The defective and illy-formed trees occupy space that better trees should occupy. Where they are allowed to remain year after year they soon become branchy and occupy the space several trees should occupy. Such trees should be removed and utilized as cordwood and in their place made to grow trees of the right species and form.

The kind of tree we desire to raise in the woodlot is one with a long, clean bole that will yield a large amount of clear material. A tree growing in the open produces branches that clothe a tree often to the ground, the result is a short tapering bole full of knots and difficult to split. A tree grown in a dense forest produces a bole free of limbs. This is because as soon as a limb is deprived of light it dies and soon falls to the ground. This is called natural pruning. In forestry the aim is to grow trees closely enough together so as to produce this natural pruning. Another result of growing trees closely together is the production of a long bole. This is because of the competition for light between trees so planted. Inasmuch as they cannot spread their crowns so as to get the desired amount of light, it is necessary to seek the light above. There is a race between the trees for the light resulting in the long boles so much desired by lumbermen. In most of our woodlots so few trees are grown to the acre that this natural pruning and this quick height growth does not take place. Enough light filters down between the crowns to keep the side branches alive and the result is limby bole, producing knotty wood. Another result of not growing trees closely enough together is the production of a rank growth of weeds, berry bushes and grasses which absorb the moisture and nutriment from the upper layers of the soil to the detriment of the forest trees.

One of the principal reasons why farmers' woodlots are not producing the amount of wood they should is because they are not protected from their enemies.

One of the worst enemies to a woodlot is the owner himself. By his lack of judgment in the selection of trees to cut, always removing the best tree he can find, he fills his woodlot with useless trees. He grows so few trees to the acre that the ground becomes clothed with weeds and grass. He exercises no care in the removal of trees, breaking neighboring trees and destroying the undergrowth. He gives no thought as to what trees shall grow in the place of those removed. By allowing continuous fires and grazing he utterly destroys conditions necessary for the proper growth of forest trees and jeopardizes the future of his woodlot by the destruction of young seedlings.

Fire passing through a woodlot consumes the leaves and other vegetable debris that has accumulated. This vegetable material when allowed to remain acts as a mulch and by its decay furnishes food to the trees and forms humus which tends to retain moisture and keeps the soil light and fresh. If it is removed the soil is exposed to the sun and rain, causing it to become dry and hard. Fire kills the small seedlings and scorches the larger trees, often killing the cambium or growing layer just beneath the bark. The trees thus become weakened and exposed to the attacks of insects and fungi. A thrifty tree is seldom so attacked.

Grazing produces a similar effect by packing the ground, by killing small seedlings by browsing and trampling, and by gnawing the bark a place of entrance for the spores of fungi is formed. It has been said that trees and cattle cannot be grown successfully on the same ground.

Insects and fungi do immense damage to forest trees. Where trees have been weakened by fire or grazing, they are especially liable to such attacks. By maintaining conditions favorable to the best and most thrifty tree growth, by removing weak and defective trees instead of allowing them to remain and become diseased and so a menace to the more healthy trees, the owner of the woodlot can, in a large measure, prevent the attacks of these enemies. Trees decay because of the growth of fungi in the wood. These low forms of plant life gain entrance through wounds in the bark caused by breaking of limbs, gnawing by animals and through wounds caused by fire. Many trees in the woodlot can be found rotten at the base where spores of fungi have found entrance through areas scorched and killed by surface fires. If the bark of a tree is kept intact and the fungi kept out, there is no reason why a tree should decay.

Our woodlots are becoming of greater and greater value as the supply of sawtimber becomes less. The time is not far distant when the timber contained in the woodlot will be a valuable asset to the owner. It should be the duty then of every owner of a woodlot to study the best conditions of tree growth, to determine the best trees to grow in the woodlot and to protect the trees from injury, in order that the timber may be in such a condition that it will yield valuable returns in the future.

VEGETABLES.

People cannot be healthy, cannot have good blood without using green vegetables. These are not so valuable for the nutrition they may contain as for the salts and acids in them which act as tonics and blood purifiers. People will fly to the chemist's shop and buy medicines said to contain iron and phosphorus or some secret elixir. This is mostly waste of money and many of these patent medicines are injurious and contain morphine and alcohol, at an enormous price. The family can best get their iron in that common and unappreciated vegetable kalaloo or spinach, and in young beans and peas used in the food commonly called "French beans." Then how few know that the shoots of young cocoes make excellent spinach, or that the leaves of young carrots make excellent flavoring for soup. Use peas and beans as the basis of soups, and put in them as many green vegetables as you can get. Tomatoes are easily grown and are better for the liver than medicines. They also contain iron. Here is a list of foods showing what elements they are rich in:

Protein.	Carbohydrate.	Fat.
Whole milk	All cereals and cereal foods	Milk
Skimmed or separated milk	Starchy vegetables, as potatoes	Cream
Buttermilk	Sweet fruits	Butter
Eggs	Peas and beans	Fat meats
Meat	Some nuts	Meat fats
Fish		Egg yolk
Cheese		Nuts
Peas and beans		Vegetable oils
Nuts		
Oatmeal and wheat		

Foods rich in salts (mineral matter):

Iron	Potassium	Phosphorus	Calcium
Dried beans	Dried beans	Dried beans	Milk
Dried peas	Dried peas	Dried peas	Dried peas
Whole wheat	Whole wheat	Potatoes	Dried beans
Spinach	Oat meal	Parsnips	Celery
Raisins	Egg yolk	Cabbage	Cabbage
Prunes	Beef	Turnips	Parsnips
Green beans	Milk	Prunes	
Fresh meat			
Eggs			

—*Journal of the Jamaica Agricultural Society.*

SCHOOL GARDENS IN JAMAICA.

(*From Proceedings of the Jamaica Agricultural Society.*)

Mr. Esson said the time had come when something should be done with regard to school gardens—to make these of some practical value in the agricultural advancement of the island. He felt they were losing a valuable opportunity of getting at the children in a more sympathetic way than they were doing at the present time. That the agricultural instructors were doing good work nobody could deny, but the value of their work would be considerably enhanced if arrangements were made by which they, the instructors, would go into the school garden and teach the children from there.

Mr. Cousins said this matter had been under consideration for some time. He thought arrangements could be made with the Educational Department by which the Instructors would be able to devote more time to the school gardens, and believed in the next few months something practical in the matter would be done.

The President pointed out that a great deal of effort had been made to improve the teaching in school gardens. As many teachers as would come, were brought up to Kingston once a year and given such agricultural instruction as was possible in that limited period. Of course, these things took a long time because they had to take men already out as teachers, bring them now again, and try to teach them a new subject, and they could not expect that everybody would take interest in the subject or be successful. The number of school gardens had increased immensely within the last two years, and the conditions in which the gardens were kept were also much improved, and he thought the government had reason to look forward hopefully to future developments.

Mr. Esson said he would like to see the school gardens as distributing centres for economic plants, etc.

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BOARD.

Report of the Commissioner of Agriculture and Forestry for 1900; 66 pp.
Report of the Commissioner of Agriculture and Forestry for 1902; 88 pp.
* First Report of the Board of Commissioners of Agriculture and Forestry, from July 1, 1903, to December 31, 1904; 170 pp.
Second Report of the Board of Commissioners of Agriculture and Forestry, for the year ending December 31, 1905; 240 pp.; 8 plates; 10 text figures.
Third Report of the Board of Commissioners of Agriculture and Forestry, for the year ending December 31, 1906; 212 pp.; 3 plates; 4 maps; 7 text figures.
Fourth Report of the Board of Commissioners of Agriculture and Forestry, for the calendar year ending December 31, 1907; 202 pp.; 7 plates.
Fifth Report of the Board of Commissioners of Agriculture and Forestry, for the calendar year ending December 31, 1908; 218 pp.; 34 plates.
Report of the Board of Commissioners of Agriculture and Forestry, for the biennial period ending December 31, 1910; 240 pp.; 45 plates.
"Notice to Importers," by H. E. Cooper; 4 pp.; 1903.
"Digest of the Statutes Relating to Importation, Soils, Plants, Fruits, Vegetables, etc., into the Territory of Hawaii." General Circular No. 1; 6 pp.

PUBLICATIONS FORDISTRIBUTION—Continued.

"Important Notice to Ship Owners, Fruit Importers and Others. Rules and Regulations Prohibiting the Introduction of Certain Pests and Animals into the Territory of Hawaii." General Circular No. 2; 3 pp.; 1904.

"Law and Regulations, Importation and Inspection of Honey Bees and Honey." General Circular No. 3; 7 pp.; 1908.

"The Hawaiian Forester and Agriculturist," a monthly magazine. Vols. I to VII; 1904-1910. To be obtained from the Hawaiian Gazette Co., Honolulu. Price $1 a year.

DIVISION OF FORESTRY.

* "Forest and Ornamental Tree Seed for Sale at Government Nursery." Press Bulletin No. 1; 3 pp.; 1905.

* "Suggestions in Regard to the Arbor Day Tree Planting Contest." Press Bulletin No. 2; 7 pp.; 1905.

"An Offer of Practical Assistance to Tree Planters." Circular No. 1; 6 pp.; 1905.

"Revised List of Forest and Ornamental Tree Seed for Sale at the Government Nursery." Press Bulletin No. 3; 4 pp.; 1906.

* "Instructions for Propagating and Planting Forest Trees." Press Bulletin No. 4; 4 pp.; 1906.

"Instructions for Planting Forest, Shade and Ornamental Trees." Press Bulletin No. 5; 7 pp.; 1909.

"Na Hoakaka no ke Kanu Ana i na Laau Malumalu ame na Laau Hoohiwahiwa." Press Bulletin No. 6; 8 pp.; 1909.

"Eucalyptus Culture in Hawaii," by Louis Margolin. Bulletin No. 1; 88 pp.; 12 plates; 1911.

Report of the Division of Forestry, for the year ending December 31, 1905. Reprint from Second Report of the Board; 77 pp.; 5 plates.

* Report of the Division of Forestry, for the year ending December 31, 1906. Reprint from Third Report of the Board; 123 pp.; 4 maps.

Report of the Division of Forestry, for the year ending December 31, 1907. Reprint from Fourth Report of the Board; 70 pp.

Report of the Division of Forestry, for the year ending December 31, 1908. Reprint from Fifth Report of the Board; 85 pp.

Report of the Division of Forestry, for the biennial period ending December 31, 1910. Reprint from Report of the Board; 86 pp.; 22 plates.

DIVISION ON ENTOMOLOGY.

"The Leaf-Hopper of the Sugar Cane," by R. C. L. Perkins. Bulletin No. 1; 38 pp.; 1903.

** "A Catalogue of the Hemipterous Family Aleyrodidae," by G. W. Kirkaldy, and "Aleyrodidae of Hawaii and Fiji with Descriptions of New Species," by Jacob Kotinsky. Bulletin No. 2; 102 pp.; 1 plate; 1907.

* "On Some Diseases of Cane Specially Considered in Relation to the Leaf-Hopper Pest and to the Stripping of Cane," by R. C. L. Perkins. Press Bulletin No. 1; 4 pp.; 1904.

"A Circular of Information," by Jacob Kotinsky. Circular No. 1; 8 pp.; 1905.

"The Japanese Beetle Fungus," by Jacob Kotinsky and Bro. M. Newell. Circular No. 2; 4 pp., cut; 1905.

Rule VII: "Concerning the Prevention of Distribution of the Mediterranean Fruit Fly"; unnumbered leaflet; 1910.

Rule VIII: "Concerning the Importation of all Banana Fruit, Banana Shoots or Plants"; unnumbered leaflet; 1911.

Report of the Division of Entomology, for the year ending December 31, 1905. Reprint from Second Report of the Board; 68 pp.; 3 plates; 10 text figures.

Report of the Division of Entomology, for the year ending December 31, 1906. Reprint from Third Report of the Board; 25 pp.; 7 text figures.

Report of the Division of Entomology, for the year ending December 31, 1907. Reprint from Fourth Report of the Board; 18 pp.; 1 plate.

Report of the Division of Entomology, for the year ending December 31, 1908. Reprint from Fifth Report of the Board; 26 pp.; 2 plates.

Report of the Division of Entomology, for the biennial period ending December 31, 1910. Reprint from Report of the Board; 70 pp.; 10 plates.

DIVISION OF ANIMAL INDUSTRY.

* "Inspection of Imported Live Stock." Rule 1; 1 p.; 1905.

* "Inspection and Testing of Imported Live Stock for Glanders and Tuberculosis." Rule 2; 1 p.; 1905.

* "Concerning Glandered Horse Stock in the Territory." Rule 3; 1 p.; 1905.

* "To Amend Rule 1, Inspection of Imported Live Stock." Rule 4; 1 p.; 1907.

* "Quarantine of Horse Stock from California." Rule 8; 1 p.; 1908.

"Rules and Regulations, Inspection and Testing of Live Stock." Rules and Laws; 11 pp.; unnumbered pamphlet; Revised 1910.

Report of the Division of Animal Industry, for the year ending December 31, 1905 Reprint from Second Report of the Board; 62 pp.

Report of the Division of Animal Industry, for the year ending December 31, 1906. Reprint from Third Report of the Board; 41 pp.; 3 plates.

Report of the Division of Animal Industry, for the year ending December 31, 1907. Reprint from the Fourth Report of the Board; 104 pp.; 6 plates.

Report of the Division of Animal Industry, for the year ending December 31, 1908. Reprint from Fifth Report of the Board; 44 pp.

Report of the Division of Animal Industry, for the biennial period ending December 31, 1910. Reprint from Report of the Board; 59 pp.; 13 plates.

*** Out of print.**